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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,594	12/13/2001	Jurgen Schredl	70408	7149

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EXAMINER	
KERNS, KEVIN P	

ART UNIT	PAPER NUMBER
1793	

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03/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/020,594	SCHREDL ET AL.	
	Examiner	Art Unit	
	Kevin P. Kerns	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 7-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/485,426.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/28/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 7-9, 12-15, and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al (US 5,400,950) in view of Gotman (US 4,404,453), and further in view of Leicht et al. (U.S. 5,551,627).

Myers et al. disclose a process of connecting two substrates comprising the steps of applying solder material to terminal areas of a first substrate to form electrically conductive spacing metallizations with solder material in direct contact with terminal

areas (col. 1, lines 50-65; and col. 6, lines 34-40). Myers et al. lack the mentioning of partial fusion of the spacing metallizations.

However, Gotman discloses using laser energy to partially melt the solder (col. 3, lines 19-22) for the purpose of avoiding or minimizing any damage to the parts being attached together (col. 2, lines 35-40). In addition, Gotman discloses heating the solder (72) to become partially liquefied and then fusion takes place, which is during the bonding action (col. 4, lines 18-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to provide a laser heating means to partially melt the solder, as taught by Gotman, in the process disclosed by Myers et al., in order to prevent any damage to the parts.

Myers et al. (in view of Gotman) disclose and/or suggest the claimed invention above, but lack mention of conductive adhesives, including that the adhesive(s) is/are different from the solder material, as set forth in new claims 21 and 22.

However, Leicht et al. disclose the process for producing a contact structure for connecting two substrates, comprising the steps of applying solder material to terminals to form spacing metallizations, wherein a conductive adhesive compound that differs from the solder material is additionally applied to solder (col. 4, lines 40-51) for the purpose of being more capable of resisting fatigue.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to apply adhesives, as taught by Leicht et al., in

the process disclosed/suggested by Myers et al. in view of Gotman, in order to resist fatigue.

4. Claims 10, 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al (US 5,400,950) in view of Gotman (US 4,404,453), and further in view of Leicht et al. (U.S. 5,551,627), and further in view of Beddingfield et al. (US 5,710,071).

Myers et al. (in view of Gotman, and further in view of Leicht et al.) disclose and/or suggest the claimed invention above, but fail to teach filling the gap between the substrates with a filler material.

However, Beddingfield et al. disclose applying a filler (encapsulant) material in the gap of the substrates for the purpose of expelling any trapped air and to prevent the chip from warping (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to have filler material in between the substrates, as taught by Beddingfield et al., in the process disclosed/suggested by Myers et al. in view of Gotman, and further in view of Leicht et al., in order to expel air and prevent warping.

Response to Arguments

5. The examiner acknowledges the applicants' amendment received by the USPTO on January 2, 2009. In addition, the Information Disclosure Statement (IDS) of January

28, 2009 has been considered and initialed, and a copy is provided with this Office Action. The applicants have cancelled claims 5 and 6, and have added new claims 21 and 22. Claims 1-4 and 7-22 are currently under consideration in the application.

6. Applicants' arguments filed January 2, 2009 have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments on pages 9-15 of the amendment, it is first noted that the newly underlined portions of the above 35 USC 103(a) rejections address the new claims and amendments to independent claim 1 that incorporate subject matter of cancelled claim 5 (for which the Leicht et al. reference was introduced -- see section 4 of the Office Action mailed September 3, 2008). Throughout pages 9-12 of the remarks section, the applicants correctly state that Myers et al. and Gotman do not disclose the claimed conductive adhesive. However, the applicants state (on pages 13 and 14 of the remarks section) that Leicht et al. allegedly do not disclose a conductive adhesive. The examiner respectfully disagrees, as Leicht et al. (see column 4, lines 40-51; and Figure 2) disclose a solder material in the form of a spherical solder preform 210, in addition to a conductive adhesive material that differs from the solder material (preform 210), in the form of conductive fillets (212,214) that are adhesive with faying surfaces (202,204) of grid array package 206 and circuit board 208. Although the applicants' discussion of Leicht et al. on page 13 of the remarks section is accurate, the interpretation of what materials are considered as conductive adhesive materials (and differ from said solder material) is in error, and the solder paste

(312,314) discussed throughout page 14 of the remarks section is not stated by the examiner as being the conductive adhesive material. From the bottom of page 14 to the 6th line on page 15 of the remarks section, the applicants argue that Leicht et al. do not disclose features that are disclosed by Myers et al. and/or Gotman, such that these arguments addressing the Leicht et al. reference are generally attacking the references individually, rather than what one of ordinary skill in the art would have recognized from the combined teachings. In response to the applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Also, and as stated in the prior Office Action, any potential deficiencies of Beddingfield et al. were not addressed by the applicants on page 15 of the remarks section. As a result, claims 1-4 and 7-22 remain rejected.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns
Primary Examiner
Art Unit 1793

/Kevin P. Kerns/
Primary Examiner, Art Unit 1793
March 20, 2009